

PCT

REQUEST

The undersigned requests that the present international application be processed according to the Patent Cooperation Treaty.

RECORD COPY

19 NOV 2003

For receiving Office use only

PCT/RO/03 / 00653

International Application No.

22 OCT 2003

International Filing Date

22 / 10 / 03

MINISTERO DELLE ATTIVITA' PRODUTTIVE

Direzione Generale per lo sviluppo produttivo e la competitività

UFFICIO ITALIANO BREVETTI E MARCHI
Name of receiving Office and PCT International Application"

Applicant's or agent's file reference
(if desired) (12 characters maximum) PE643

Box No. I TITLE OF INVENTION

A protective wire net, a protective structure constructed with the net, and the use of the protective wire net for the construction of a protective structure

Box No. II APPLICANT

☐ This person is also inventor

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)

OFFICINE MACCAFERRI S.p.A.

Via Agresti, 6
40123 Bologna
ITALY

Telephone No.

Facsimile No.

Teleprinter No.

Applicant's registration No. with the Office

State (that is, country) of nationality:

IT

State (that is, country) of residence:

IT

This person is applicant for the purposes of:

☐ all designated States

☒ all designated States except the United States of America

☐ the United States of America only

☐ the States indicated in the Supplemental Box

Box No. III FURTHER APPLICANT(S) AND/OR (FURTHER) INVENTOR(S)

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)

FERRAILOLO, Francesco

Via Gandolfi, 58
40050 Ca' de' Fabbri (Bologna)
ITALY

This person is:

☐ applicant only

☒ applicant and inventor

☐ inventor only (If this check-box is marked, do not fill in below.)

Applicant's registration No. with the Office

State (that is, country) of nationality:

IT

State (that is, country) of residence:

IT

This person is applicant for the purposes of:

☐ all designated States

☐ all designated States except the United States of America

☒ the United States of America only

☐ the States indicated in the Supplemental Box

☐ Further applicants and/or (further) inventors are indicated on a continuation sheet.

Box No. IV AGENT OR COMMON REPRESENTATIVE; OR ADDRESS FOR CORRESPONDENCE

The person identified below is hereby/has been appointed to act on behalf of the applicant(s) before the competent International Authorities as:

☒ agent

☐ common representative

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)

PROVVISIONATO, Paolo; BALSAMO, Andrea

c/o PROVVISIONATO & CO S.r.l.
Piazza di Porta Mascarella, 7
40126 Bologna
ITALY

Telephone No.

+39-051-6390251

Facsimile No.

+39-051-6390252

Teleprinter No.

Agent's registration No. with the Office

☐ Address for correspondence: Mark this check-box where no agent or common representative is/has been appointed and the space above is used instead to indicate a special address to which correspondence should be sent.

PCT

REQUEST

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MINISTERO DELLE ATTIVITA' PRODUTTIVE

Direzione Generale per lo sviluppo produttivo e la competitività

UFFICIO ITALIANO BREVETTI E MARCHI

Name of receiving Office and "PCT International Application"

Applicant's or agent's file reference
(if desired) (12 characters maximum) PE643

Box No. I TITLE OF INVENTION	
Rete metallica di protezione, struttura di protezione realizzata con tale rete e uso della rete metallica di protezione per la realizzazione di una struttura di protezione	
Box No. II APPLICANT <input type="checkbox"/> This person is also inventor	
Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)	
OFFICINE MACCAFERRI S.p.A.	
Via Agresti, 6 40123 Bologna ITALY	
Telephone No.	
Facsimile No.	
Teleprinter No.	
Applicant's registration No. with the Office	
State (that is, country) of nationality: IT	State (that is, country) of residence: IT
This person is applicant for the purposes of: <input type="checkbox"/> all designated States <input checked="" type="checkbox"/> all designated States except the United States of America <input type="checkbox"/> the United States of America only <input type="checkbox"/> the States indicated in the Supplemental Box	
Box No. III FURTHER APPLICANT(S) AND/OR (FURTHER) INVENTOR(S)	
Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)	
FERRAILO, Francesco	
Via Gandolfi, 58 40050 Ca' de' Fabbri (Bologna) ITALY	
This person is: <input type="checkbox"/> applicant only <input checked="" type="checkbox"/> applicant and inventor <input type="checkbox"/> inventor only (If this check-box is marked, do not fill in below.)	
Applicant's registration No. with the Office	
State (that is, country) of nationality: IT	State (that is, country) of residence: IT
This person is applicant for the purposes of: <input type="checkbox"/> all designated States <input type="checkbox"/> all designated States except the United States of America <input checked="" type="checkbox"/> the United States of America only <input type="checkbox"/> the States indicated in the Supplemental Box	
<input type="checkbox"/> Further applicants and/or (further) inventors are indicated on a continuation sheet.	
Box No. IV AGENT OR COMMON REPRESENTATIVE; OR ADDRESS FOR CORRESPONDENCE	
The person identified below is hereby/has been appointed to act on behalf of the applicant(s) before the competent International Authorities as: <input checked="" type="checkbox"/> agent <input type="checkbox"/> common representative	
Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)	
PROVVISIONATO, Paolo; BALSAMO, Andrea	
c/o PROVVISIONATO & CO S.r.l. Piazza di Porta Mascarella, 7 40126 Bologna ITALY	
Telephone No. +39-051-6390251	
Facsimile No. +39-051-6390252	
Teleprinter No.	
Agent's registration No. with the Office	
<input type="checkbox"/> Address for correspondence: Mark this check-box where no agent or common representative is/has been appointed and the space above is used instead to indicate a special address to which correspondence should be sent.	

REPLACED

BEST AVAILABLE COPY

Box No. V DESIGNATION OF STATES

Mark the applicable check-boxes below; at least one must be marked.

The following designations are hereby made under Rule 4.9(a):

Regional Patent

- ☒ **AP ARIPO Patent:** GH Ghana, GM Gambia, KE Kenya, LS Lesotho, MW Malawi, MZ Mozambique, SD Sudan, SL Sierra Leone, SZ Swaziland, TZ United Republic of Tanzania, UG Uganda, ZM Zambia, ZW Zimbabwe, and any other State which is a Contracting State of the Harare Protocol and of the PCT (if other kind of protection or treatment desired, specify on dotted line)
- ☒ **EA Eurasian Patent:** AM Armenia, AZ Azerbaijan, BY Belarus, KG Kyrgyzstan, KZ Kazakhstan, MD Republic of Moldova, RU Russian Federation, TJ Tajikistan, TM Turkmenistan, and any other State which is a Contracting State of the Eurasian Patent Convention and of the PCT
- ☒ **EP European Patent:** AT Austria, BE Belgium, BG Bulgaria, CH & LI Switzerland and Liechtenstein, CY Cyprus, CZ Czech Republic, DE Germany, DK Denmark, EE Estonia, ES Spain, FI Finland, FR France, GB United Kingdom, GR Greece, HU Hungary, IE Ireland, IT Italy, LU Luxembourg, MC Monaco, NL Netherlands, PT Portugal, RO Romania, SE Sweden, SI Slovenia, SK Slovakia, TR Turkey, and any other State which is a Contracting State of the European Patent Convention and of the PCT
- ☒ **OA OAPI Patent:** BF Burkina Faso, BJ Benin, CF Central African Republic, CG Congo, CI Côte d'Ivoire, CM Cameroon, GA Gabon, GN Guinea, GQ Equatorial Guinea, GW Guinea-Bissau, ML Mali, MR Mauritania, NE Niger, SN Senegal, TD Chad, TG Togo, and any other State which is a member State of OAPI and a Contracting State of the PCT (if other kind of protection or treatment desired, specify on dotted line)

National Patent (if other kind of protection or treatment desired, specify on dotted line):

- | | | |
|---|--|---|
| <input checked="" type="checkbox"/> AE United Arab Emirates | <input checked="" type="checkbox"/> HR Croatia | <input checked="" type="checkbox"/> OM Oman |
| <input checked="" type="checkbox"/> AG Antigua and Barbuda | <input checked="" type="checkbox"/> HU Hungary | <input checked="" type="checkbox"/> PG Papua New Guinea |
| <input checked="" type="checkbox"/> AL Albania | <input checked="" type="checkbox"/> ID Indonesia | <input checked="" type="checkbox"/> PH Philippines |
| <input checked="" type="checkbox"/> AM Armenia | <input checked="" type="checkbox"/> IL Israel | <input checked="" type="checkbox"/> PL Poland |
| <input checked="" type="checkbox"/> AT Austria | <input checked="" type="checkbox"/> IN India | <input checked="" type="checkbox"/> PT Portugal |
| <input checked="" type="checkbox"/> AU Australia | <input checked="" type="checkbox"/> IS Iceland | <input checked="" type="checkbox"/> RO Romania |
| <input checked="" type="checkbox"/> AZ Azerbaijan | <input checked="" type="checkbox"/> JP Japan | <input checked="" type="checkbox"/> RU Russian Federation |
| <input checked="" type="checkbox"/> BA Bosnia and Herzegovina | <input checked="" type="checkbox"/> KE Kenya | |
| <input checked="" type="checkbox"/> BB Barbados | <input checked="" type="checkbox"/> KG Kyrgyzstan | <input checked="" type="checkbox"/> SC Seychelles |
| <input checked="" type="checkbox"/> BG Bulgaria | <input checked="" type="checkbox"/> KP Democratic People's Republic of Korea | <input checked="" type="checkbox"/> SD Sudan |
| <input checked="" type="checkbox"/> BR Brazil | <input checked="" type="checkbox"/> KR Republic of Korea | <input checked="" type="checkbox"/> SE Sweden |
| <input checked="" type="checkbox"/> BY Belarus | <input checked="" type="checkbox"/> KZ Kazakhstan | <input checked="" type="checkbox"/> SG Singapore |
| <input checked="" type="checkbox"/> BZ Belize | <input checked="" type="checkbox"/> LC Saint Lucia | <input checked="" type="checkbox"/> SK Slovakia |
| <input checked="" type="checkbox"/> CA Canada | <input checked="" type="checkbox"/> LK Sri Lanka | <input checked="" type="checkbox"/> SL Sierra Leone |
| <input checked="" type="checkbox"/> CH & LI Switzerland and Liechtenstein | <input checked="" type="checkbox"/> LR Liberia | <input checked="" type="checkbox"/> SY Syrian Arab Republic |
| <input checked="" type="checkbox"/> CN China | <input checked="" type="checkbox"/> LS Lesotho | <input checked="" type="checkbox"/> TJ Tajikistan |
| <input checked="" type="checkbox"/> CO Colombia | <input checked="" type="checkbox"/> LT Lithuania | <input checked="" type="checkbox"/> TM Turkmenistan |
| <input checked="" type="checkbox"/> CR Costa Rica | <input checked="" type="checkbox"/> LU Luxembourg | <input checked="" type="checkbox"/> TN Tunisia |
| <input checked="" type="checkbox"/> CU Cuba | <input checked="" type="checkbox"/> LV Latvia | <input checked="" type="checkbox"/> TR Turkey |
| <input checked="" type="checkbox"/> CZ Czech Republic | <input checked="" type="checkbox"/> MA Morocco | <input checked="" type="checkbox"/> TT Trinidad and Tobago |
| <input checked="" type="checkbox"/> DE Germany | <input checked="" type="checkbox"/> MD Republic of Moldova | |
| <input checked="" type="checkbox"/> DK Denmark | <input checked="" type="checkbox"/> MG Madagascar | <input checked="" type="checkbox"/> TZ United Republic of Tanzania |
| <input checked="" type="checkbox"/> DM Dominica | <input checked="" type="checkbox"/> MK The former Yugoslav Republic of Macedonia | <input checked="" type="checkbox"/> UA Ukraine |
| <input checked="" type="checkbox"/> DZ Algeria | <input checked="" type="checkbox"/> MN Mongolia | <input checked="" type="checkbox"/> UG Uganda |
| <input checked="" type="checkbox"/> EC Ecuador | <input checked="" type="checkbox"/> MW Malawi | <input checked="" type="checkbox"/> US United States of America |
| <input checked="" type="checkbox"/> EE Estonia | <input checked="" type="checkbox"/> MX Mexico | |
| <input checked="" type="checkbox"/> ES Spain | <input checked="" type="checkbox"/> MZ Mozambique | <input checked="" type="checkbox"/> UZ Uzbekistan |
| <input checked="" type="checkbox"/> FI Finland | <input checked="" type="checkbox"/> NI Nicaragua | <input checked="" type="checkbox"/> VC Saint Vincent and the Grenadines |
| <input checked="" type="checkbox"/> GB United Kingdom | <input checked="" type="checkbox"/> NO Norway | <input checked="" type="checkbox"/> VN Viet Nam |
| <input checked="" type="checkbox"/> GD Grenada | <input checked="" type="checkbox"/> NZ New Zealand | <input checked="" type="checkbox"/> YU Serbia and Montenegro |
| <input checked="" type="checkbox"/> GE Georgia | | <input checked="" type="checkbox"/> ZA South Africa |
| <input checked="" type="checkbox"/> GH Ghana | | <input checked="" type="checkbox"/> ZM Zambia |
| <input checked="" type="checkbox"/> GM Gambia | | <input checked="" type="checkbox"/> ZW Zimbabwe |

Check-boxes below reserved for designating States which have become party to the PCT after issuance of this sheet:

- ☒ .EG Egypt ☐ ☐

Precautionary Designation Statement: In addition to the designations made above, the applicant also makes under Rule 4.9(b) all other designations which would be permitted under the PCT except any designation(s) indicated in the Supplemental Box as being excluded from the scope of this statement. The applicant declares that those additional designations are subject to confirmation and that any designation which is not confirmed before the expiration of 15 months from the priority date is to be regarded as withdrawn by the applicant at the expiration of that time limit. (Confirmation (including fees) must reach the receiving Office within the 15-month time limit.)

Box No. VI PRIORITY CLAIM

The priority of the following earlier application(s) is hereby claimed:

Filing date of earlier application (day/month/year)	Number of earlier application	Where earlier application is:		
		national application: country or Member of WTO	regional application:* regional Office	international application: receiving Office
item (1)				
item (2)				
item (3)				
item (4)				
item (5)				

☐ Further priority claims are indicated in the Supplemental Box.

The receiving Office is requested to prepare and transmit to the International Bureau a certified copy of the earlier application(s) (*only if the earlier application was filed with the Office which for the purposes of this international application is the receiving Office*) identified above as:

☐ all items
 ☐ item (1)
 ☐ item (2)
 ☐ item (3)
 ☐ item (4)
 ☐ item (5)
 ☐ other, see Supplemental Box

* Where the earlier application is an ARIPO application, indicate at least one country party to the Paris Convention for the Protection of Industrial Property or one Member of the World Trade Organization for which that earlier application was filed (Rule 4.10(b)(ii)):

Box No. VII INTERNATIONAL SEARCHING AUTHORITY

Choice of International Searching Authority (ISA) (if two or more International Searching Authorities are competent to carry out the international search, indicate the Authority chosen; the two-letter code may be used):

ISA / EP

Request to use results of earlier search; reference to that search (if an earlier search has been carried out by or requested from the International Searching Authority):

Date (day/month/year)

Number

Country (or regional Office)

Box No. VIII DECLARATIONS

The following declarations are contained in Boxes Nos. VIII (i) to (v) (mark the applicable check-boxes below and indicate in the right column the number of each type of declaration):

Number of
declarations

- | | | |
|---|--|---|
| <input type="checkbox"/> Box No. VIII (i) | Declaration as to the identity of the inventor | : |
| <input type="checkbox"/> Box No. VIII (ii) | Declaration as to the applicant's entitlement, as at the international filing date, to apply for and be granted a patent | : |
| <input type="checkbox"/> Box No. VIII (iii) | Declaration as to the applicant's entitlement, as at the international filing date, to claim the priority of the earlier application | : |
| <input type="checkbox"/> Box No. VIII (iv) | Declaration of inventorship (only for the purposes of the designation of the United States of America) | : |
| <input type="checkbox"/> Box No. VIII (v) | Declaration as to non-prejudicial disclosures or exceptions to lack of novelty | : |

Box No. IX CHECK LIST; LANGUAGE OF FILING																																					
<p>This international application contains:</p> <p>(a) in paper form, the following number of sheets:</p> <p style="margin-left: 20px;">request (including declaration sheets) : 4</p> <p style="margin-left: 20px;">description (excluding sequence listings and/or tables related thereto) : 9</p> <p style="margin-left: 20px;">claims : 3</p> <p style="margin-left: 20px;">abstract : 1</p> <p style="margin-left: 20px;">drawings : 5</p> <p style="margin-left: 20px;">Sub-total number of sheets : 22</p> <p style="margin-left: 20px;">sequence listings : </p> <p style="margin-left: 20px;">tables related thereto : </p> <p style="margin-left: 20px;"><i>(for both, actual number of sheets if filed in paper form, whether or not also filed in computer readable form; see (c) below)</i></p> <p style="margin-left: 20px;">Total number of sheets : 22</p> <p>(b) <input type="checkbox"/> only in computer readable form (Section 801(a)(i))</p> <p style="margin-left: 20px;">(i) <input type="checkbox"/> sequence listings</p> <p style="margin-left: 20px;">(ii) <input type="checkbox"/> tables related thereto</p> <p>(c) <input type="checkbox"/> also in computer readable form (Section 801(a)(ii))</p> <p style="margin-left: 20px;">(i) <input type="checkbox"/> sequence listings</p> <p style="margin-left: 20px;">(ii) <input type="checkbox"/> tables related thereto</p> <p>Type and number of carriers (diskette, CD-ROM, CD-R or other) on which are contained the</p> <p><input type="checkbox"/> sequence listings:</p> <p><input type="checkbox"/> tables related thereto:</p> <p><i>(additional copies to be indicated under items 9(ii) and/or 10(ii), in right column)</i></p>	<p>This international application is accompanied by the following item(s) <i>(mark the applicable check-boxes below and indicate in right column the number of each item)</i>:</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 80%;"></th> <th style="width: 20%; text-align: right;">Number of items</th> </tr> </thead> <tbody> <tr> <td>1. <input checked="" type="checkbox"/> fee calculation sheet</td> <td style="text-align: right;">1</td> </tr> <tr> <td>2. <input checked="" type="checkbox"/> original separate power of attorney</td> <td style="text-align: right;">1</td> </tr> <tr> <td>3. <input type="checkbox"/> original general power of attorney</td> <td style="text-align: right;"></td> </tr> <tr> <td>4. <input type="checkbox"/> copy of general power of attorney; reference number, if any:</td> <td style="text-align: right;"></td> </tr> <tr> <td>5. <input type="checkbox"/> statement explaining lack of signature</td> <td style="text-align: right;"></td> </tr> <tr> <td>6. <input type="checkbox"/> priority document(s) identified in Box No. VI as item(s):</td> <td style="text-align: right;"></td> </tr> <tr> <td>7. <input checked="" type="checkbox"/> translation of international application into (language): EN</td> <td style="text-align: right;">1</td> </tr> <tr> <td>8. <input type="checkbox"/> separate indications concerning deposited microorganism or other biological material</td> <td style="text-align: right;"></td> </tr> <tr> <td>9. <input type="checkbox"/> sequence listings in computer readable form <i>(indicate type and number of carriers)</i></td> <td style="text-align: right;"></td> </tr> <tr> <td style="padding-left: 20px;">(i) <input type="checkbox"/> copy submitted for the purposes of international search under Rule 13ter only (and not as part of the international application):</td> <td style="text-align: right;"></td> </tr> <tr> <td style="padding-left: 20px;">(ii) <input type="checkbox"/> <i>(only where check-box (b)(i) or (c)(i) is marked in left column)</i> additional copies including, where applicable, the copy for the purposes of international search under Rule 13ter</td> <td style="text-align: right;"></td> </tr> <tr> <td style="padding-left: 20px;">(iii) <input type="checkbox"/> together with relevant statement as to the identity of the copy or copies with the sequence listings mentioned in left column</td> <td style="text-align: right;"></td> </tr> <tr> <td>10. <input type="checkbox"/> tables in computer readable form related to sequence listings <i>(indicate type and number of carriers)</i></td> <td style="text-align: right;"></td> </tr> <tr> <td style="padding-left: 20px;">(i) <input type="checkbox"/> copy submitted for the purposes of international search under Section 802(b-quater) only (and not as part of the international application)</td> <td style="text-align: right;"></td> </tr> <tr> <td style="padding-left: 20px;">(ii) <input type="checkbox"/> <i>(only where check-box (b)(ii) or (c)(ii) is marked in left column)</i> additional copies including, where applicable, the copy for the purposes of international search under Section 802(b-quater)</td> <td style="text-align: right;"></td> </tr> <tr> <td style="padding-left: 20px;">(iii) <input type="checkbox"/> together with relevant statement as to the identity of the copy or copies with the tables mentioned in left column</td> <td style="text-align: right;"></td> </tr> <tr> <td>11. <input type="checkbox"/> other (specify):</td> <td style="text-align: right;"></td> </tr> </tbody> </table>		Number of items	1. <input checked="" type="checkbox"/> fee calculation sheet	1	2. <input checked="" type="checkbox"/> original separate power of attorney	1	3. <input type="checkbox"/> original general power of attorney		4. <input type="checkbox"/> copy of general power of attorney; reference number, if any:		5. <input type="checkbox"/> statement explaining lack of signature		6. <input type="checkbox"/> priority document(s) identified in Box No. VI as item(s):		7. <input checked="" type="checkbox"/> translation of international application into (language): EN	1	8. <input type="checkbox"/> separate indications concerning deposited microorganism or other biological material		9. <input type="checkbox"/> sequence listings in computer readable form <i>(indicate type and number of carriers)</i>		(i) <input type="checkbox"/> copy submitted for the purposes of international search under Rule 13ter only (and not as part of the international application):		(ii) <input type="checkbox"/> <i>(only where check-box (b)(i) or (c)(i) is marked in left column)</i> additional copies including, where applicable, the copy for the purposes of international search under Rule 13ter		(iii) <input type="checkbox"/> together with relevant statement as to the identity of the copy or copies with the sequence listings mentioned in left column		10. <input type="checkbox"/> tables in computer readable form related to sequence listings <i>(indicate type and number of carriers)</i>		(i) <input type="checkbox"/> copy submitted for the purposes of international search under Section 802(b-quater) only (and not as part of the international application)		(ii) <input type="checkbox"/> <i>(only where check-box (b)(ii) or (c)(ii) is marked in left column)</i> additional copies including, where applicable, the copy for the purposes of international search under Section 802(b-quater)		(iii) <input type="checkbox"/> together with relevant statement as to the identity of the copy or copies with the tables mentioned in left column		11. <input type="checkbox"/> other (specify):	
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(iii) <input type="checkbox"/> together with relevant statement as to the identity of the copy or copies with the tables mentioned in left column																																					
11. <input type="checkbox"/> other (specify):																																					
<p>Figure of the drawings which should accompany the abstract: 3</p>	<p>Language of filing of the international application: ITALIAN</p>																																				
<p>Box No. X SIGNATURE OF APPLICANT, AGENT OR COMMON REPRESENTATIVE</p> <p><i>Next to each signature, indicate the name of the person signing and the capacity in which the person signs (if such capacity is not obvious from reading the request).</i></p>																																					
<div style="display: flex; align-items: center;"> <div> <p>BALSAMO, Andrea</p> <p>Common Agent</p> </div> </div>																																					

For receiving Office use only	
<p>1. Date of actual receipt of the purported international application: 22 OCT 2003 22 / 10 / 03</p>	<p>2. Drawings:</p> <p><input checked="" type="checkbox"/> received:</p> <p><input type="checkbox"/> not received:</p>
<p>3. Corrected date of actual receipt due to later but timely received papers or drawings completing the purported international application:</p>	<p><input type="checkbox"/> not received:</p>
<p>4. Date of timely receipt of the required corrections under PCT Article 11(2):</p>	
<p>5. International Searching Authority (if two or more are competent): ISA /</p>	<p>6. <input type="checkbox"/> Transmittal of search copy delayed until search fee is paid</p>

For International Bureau use only
<p>Date of receipt of the record copy by the International Bureau: 17 DEC 2003</p>

Box No. VIII (ii) DECLARATION: ENTITLEMENT TO APPLY FOR AND BE GRANTED A PATENT

The declaration must conform to the standardized wording provided for in Section 212; see Notes to Boxes Nos. VIII, VIII (i) to (v) (in general) and the specific Notes to Box No. VIII (ii). If this Box is not used, this sheet should not be included in the request.

Declaration as to the applicant's entitlement, as at the international filing date, to apply for and be granted a patent (Rules 4.17(ii) and 51bis.1(a)(ii)), in a case where the declaration under Rule 4.17(iv) is not appropriate:

in relation to international application no. PCT/IT03/00653,

OFFICINE MACCAFERRI S.p.A.

is entitled to apply for and be granted a patent by virtue of the following:

an assignment from

FERRAILOLO Francesco, Ca' de' Fabbri (Bologna), Italy

to

OFFICINE MACCAFERRI S.p.A., Via Agresti, 6 - 40123 Bologna, Italy

dated 17 October 2003.

This declaration is made for the purposes of all designations, except the designation of the United States of America.

☐ This declaration is continued on the following sheet, "Continuation of Box No. VIII (ii)".

Box No. VIII (iv) DECLARATION: INVENTORSHIP (only for the purposes of the designation of the United States of America)
The declaration must conform to the following standardized wording provided for in Section 214; see Notes to Boxes Nos. VIII, VIII (i) to (v) (in general) and the specific Notes to Box No. VIII (iv). If this Box is not used, this sheet should not be included in the request.

**Declaration of inventorship (Rules 4.17(iv) and 51bis.1(a)(iv))
for the purposes of the designation of the United States of America:**

I hereby declare that I believe I am the original, first and sole (if only one inventor is listed below) or joint (if more than one inventor is listed below) inventor of the subject matter which is claimed and for which a patent is sought.

This declaration is directed to the international application of which it forms a part (if filing declaration with application).

This declaration is directed to international application No. PCT/IT03/00653 (if furnishing declaration pursuant to Rule 26ter).

I hereby declare that my residence, mailing address, and citizenship are as stated next to my name.

I hereby state that I have reviewed and understand the contents of the above-identified international application, including the claims of said application. I have identified in the request of said application, in compliance with PCT Rule 4.10, any claim to foreign priority, and I have identified below, under the heading "Prior Applications," by application number, country or Member of the World Trade Organization, day, month and year of filing, any application for a patent or inventor's certificate filed in a country other than the United States of America, including any PCT international application designating at least one country other than the United States of America, having a filing date before that of the application on which foreign priority is claimed.

Prior Applications:

I hereby acknowledge the duty to disclose information that is known by me to be material to patentability as defined by 37 C.F.R. § 1.56, including for continuation-in-part applications, material information which became available between the filing date of the prior application and the PCT international filing date of the continuation-in-part application.

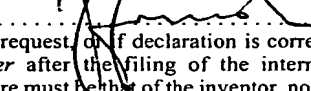
I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Name: FERRAILOLO Francesco

Residence: Ca' de' Fabbri (Bologna), Italy
(city and either US state, if applicable, or country)

Mailing Address: Via Gandolfi, 58
40050 Ca' de' Fabbri (Bologna), Italy

Citizenship: Italian

Inventor's Signature: 
(if not contained in the request, or if declaration is corrected or added under Rule 26ter after the filing of the international application. The signature must be that of the inventor, not that of the agent)

Date: 17 October 2003
(of signature which is not contained in the request, or of the declaration that is corrected or added under Rule 26ter after the filing of the international application)

Name:

Residence:
(city and either US state, if applicable, or country)

Mailing Address:

Citizenship:

Inventor's Signature:
(if not contained in the request, or if declaration is corrected or added under Rule 26ter after the filing of the international application. The signature must be that of the inventor, not that of the agent)

Date:
(of signature which is not contained in the request, or of the declaration that is corrected or added under Rule 26ter after the filing of the international application)

☐ This declaration is continued on the following sheet, "Continuation of Box No. VIII (iv)".

1AP20Rec'd PCT/PTO 21 APR 2006

A PROTECTIVE WIRE NET, A PROTECTIVE STRUCTURE CONSTRUCTED
WITH THE NET, AND THE USE OF THE PROTECTIVE WIRE NET FOR THE
CONSTRUCTION OF A PROTECTIVE STRUCTURE.

The present invention relates to the field of protective wire nets. The invention has been developed with particular reference to a protective wire net comprising an array of longitudinal wires arranged side by side and each intertwined with at least one adjacent longitudinal wire.

The present invention also relates to a protective structure comprising at least one protective wire net of the above-mentioned type and to the use of this protective wire net to construct the structure.

In the field of protective wire nets, it is known to produce protective nets which are constituted by wires that are intertwined with one another. These nets are generally used to construct structures for protecting embankments, rocky slopes, or similar earth structures to prevent the detachment of rocks or the progress of landslides and avalanches which might put roadways, habitations, infrastructures, or heavily frequented areas at risk. Known protective structures are composed of nets of the above-mentioned type which are anchored to the ground by metal stakes or other anchorings which constitute nodal points of the structure.

Frequently, the strength of known nets is not sufficient to withstand the stresses to which they are subjected and it is therefore necessary to superimpose reinforcing cables or panels on the nets by fixing them to the metal stakes or to the other anchorings. In this case, the numerous steps in the fixing of the nets and of the cables or panels, which are generally performed in poorly accessible areas, render

the installation of the entire protective structure quite impractical, consequently extending installation times and inevitably increasing installation costs.

The object of the present invention is to solve the problems of the prior art by providing a very reliable and strong protective net, the use of which enables protective structures to be constructed easily, quickly, and at a low cost.

Another object of the present invention is to provide a protective wire net which is of inexpensive construction and which can be produced by a conventional machine operation.

In order to achieve the objects indicated above, the subject of the invention is a protective wire net of the type indicated in the introduction to this description which further comprises one or more longitudinal metal cables, each intertwined with at least one adjacent longitudinal wire.

One of the main advantages of the present invention is the particular tensile strength of the net in the longitudinal direction of the cables included therein. This characteristic enables protective structures to be constructed without additional cables or panels superimposed on the nets, thus reducing installation times and costs. Another advantage of the present invention is that the wires and the cables can be netted simultaneously by means of conventional machines which thus enable the cables to be incorporated in the wire net by means of a single process and to be distributed in accordance with any predetermined pattern.

According to another characteristic of the present invention, transverse wires and/or metal cables may be arranged in a transverse direction relative to the wires and outside or inside intertwining regions defined by portions of adjacent longitudinal wires which are bent around one another. The transverse wires and/or metal cables thus arranged are intertwined or interlaced with one or more of the longitudinal wires.

The main advantage which results from the insertion of transverse wires and/or metal cables is that of increasing the strength of the net in the direction transverse the longitudinal wires in a simple manner. The introduction of the wires and/or cables does not in fact involve modification of the conventional net-production process but purely the addition of a step after the longitudinal wires have been netted.

Further characteristics and advantages will become clear from the following detailed description given with reference to the appended drawings which are provided purely by way of non-limiting example and in which:

Figure 1 is a generalized diagram of a protective wire net according to the present invention,

Figure 2 is a partial view of a protective wire net according to the present invention from above,

Figure 3 is a partial view of another protective wire net according to the present invention from above,

Figure 4 is a partial view of a further protective wire net according to the present invention from above,

Figure 5 is a partial view sectioned on the line IV of Figure 3,

Figure 6 is a schematic view of a variant of the net of Figure 3 from above,

Figure 7 is a schematic view of a further variant of the protective wire net of Figure 3 from above,

Figure 8 is a partial view of an edge portion of a net according to the present invention from above, and

Figure 9 is a partial view from above of a protective structure comprising at least two protective wire nets according to the present invention; in particular, the connection region of the two nets is shown.

With reference now to Figure 1, a protective wire net 10, preferably but in non-limiting manner a double-twist net with hexagonal meshes, comprises an array of wires 12 which are arranged side by side and each of which is intertwined with at least one respective longitudinal wire 12. The wires 12 may preferably but in non-limiting manner be made of ordinary steel such as, for example, a steel with a tensile strength of about 500 Mpa; naturally this value is not intended to be limiting of the invention.

Each of one or more metal cables 14, 16 is intertwined or interlaced with at least one adjacent longitudinal wire 12. The metal cables 14, 16 may be arranged in two preferential directions and, preferably but in non-limiting manner, may be joined to each other or to the wires 12 by anchoring means 18. The anchoring means 18 may be arranged, for example but in non-limiting manner, at each point of intersection of two cables 14, 16 or only at some points

and, preferably, at the ends of each cable 14, 16. The distribution of the anchoring means 18 in the wire net 10 is substantially uniform but the anchoring means 18 may be concentrated in predetermined regions of the wire net 10 if it is necessary to produce a protective wire net which comprises regions having different surface strengths.

The distribution of the cables 14, 16 in the wire net 10 is also substantially uniform, but their positions may be varied in predetermined regions. In particular, it has been found that, in terms of strength, it is particularly advantageous to arrange the cables 14, 16 at regular intervals within the range of from 20 cm to 1.5 metres with preferred intervals of 25, 40, 50 and 100 centimetres. However, these values should not be considered as being in any way limiting of the invention.

The remaining drawings show, by way of example, some embodiments of the invention in which the same reference numerals have been used to indicate corresponding elements.

With reference now to Figure 2, a protective wire net 10 comprises an array of longitudinal wires 12 each of which comprises at least one twisted portion 20 and one non-twisted portion 21 and which are arranged side by side so as to define a longitudinal direction of the protective wire net 10. Each wire 12 is intertwined with at least one other respective longitudinal wire 12, preferably in their respective twisted portions 20.

The wire net 10 further comprises one or more longitudinal metal cables 14 interposed between the wires 12. The longitudinal cables 14 may be arranged between two wires 12 or beside one wire, for example, at an edge of the wire net 10. The longitudinal metal cables 14 comprise portions 24

around which twisted portions 20 of at least one or more adjacent wires 12 are twisted. According to a further advantageous characteristic of the present invention, the longitudinal cables 14 may also comprise twisted portions which are engaged with the longitudinal wires of the wire net.

Figure 3 shows a further embodiment of the present invention in which a protective wire net 10 similar to that shown in Figure 2 comprises one or more transverse cables 16 arranged transversely relative to the longitudinal cables 14. The transverse cables 16 are intertwined or interlaced, throughout their length or for only part thereof, with the wires 12 and/or with the longitudinal cables 14 and are arranged outside intertwining regions 22 defined by two twisted portions 20 of wires 12 and/or by the portions 24 of longitudinal cables 14.

To facilitate the arrangement of a transverse cable 16 within a wire net 10, passages may be formed between the wires 12 and, for example as shown in Figure 5, may be constituted by respective central bends in the non-twisted portions 21. The path of a transverse cable 16 through the protective wire net 10 preferably but in non-limiting manner comprises non-twisted portions 21 with central bends and non-twisted portions 21 without central bends, arranged in alternation with one another.

Preferably, the transverse cables 16 are secured relative to the wires 12 and/or to the longitudinal cables 14 by the above-described anchoring means 18, more preferably by shaped plates 30 or clamps 32, as shown in Figure 3, and even more preferably by means of eyes 42 formed directly in the transverse cables 16 or engaged thereon as shown in Figure 8. Naturally, anchoring means of the same type or of

different types may equally well be used in the same net, without thereby departing from the scope of the present invention.

In one of the further embodiments shown in Figure 4, the protective wire net 10 comprises one or more transverse wires 34 which are engaged with the wires 12 or with the longitudinal cables 14 by means of the above-described anchoring means 18. In this configuration, the anchoring means 18 disposed at the edge of the net 10 comprise an end 36 of each transverse wire 34 which is bent onto a wire 12 or onto a longitudinal cable 14.

As shown in Figures 6 and 7, the transverse cables may comprise one or more bent portions 28 of longitudinal cables 14. Preferably but in non-limiting manner, the bent portions 28 form parts of longitudinal cables 14 that are disposed at the edge of the net 10, and they extend from one extremity of the net to the other. Different bent portions 28 may extend through the same meshes of the wire net, as shown in Figure 6, or may equally well extend through different meshes, as shown in Figure 7.

A protective structure formed in accordance with the present invention comprises one or more protective wire nets 10 as described above and means of known type for fixing to the ground, such as hook-headed spikes, ties, or rivets, preferably engaged with the cables 14, 16. Two or more wire nets may be joined together by coupling means such as, for example, rings, clips, cables, or equivalent means.

According to a particularly advantageous embodiment of the present invention, the coupling means comprise coupling elements formed directly on one or more transverse cables 16 of at least one of the wire nets. As shown in Figure 9, the

transverse cables 16 comprise, for example, at one end thereof, a portion which is bent and clamped to itself to form a loop-like element or eye 42. A further coupling element such as a wire, a rope, or a cable 50 is arranged through the meshes of the two nets 10 and the eyes 42 of the transverse cables 16, connecting pairs of adjacent eyes 42 to one another.

The overall resistance of the protective structure to external stresses can thus be increased, both because the two wire nets 10 are firmly joined together and because the protective structure has a continuity of transverse cables 16 also including the coupling cable 50.

In the embodiment shown in Figure 9, the protective wire nets 10 which are joined together are oriented with the longitudinal wires 12 arranged in the same direction. In this case, the coupling means 42, 50 are disposed at the ends of the transverse metal cables 16. Alternatively, the coupling means may also be arranged in regions remote from the edges of the wire net 10 so that the joining region of two or more nets comprises overlapping portions of wire nets.

Naturally, many variations may be provided for without thereby departing from the scope of the present invention. For example, the wire nets which form the protective structure may be arranged in different orientations and the coupling means may also be formed on the longitudinal metal cables and transverse metal cables may extend through them.

In use, one or more nets 10 are placed on a portion of a slope, embankment, or similar earth structure which is to be protected, for example, to prevent the detachment of rocks or stones. Each net is then fixed to the portion of slope

by the application of a plurality of fixing means with a uniform distribution or with a concentrated distribution in regions where greater strength is required. Alternatively, stakes or posts are fixed in the ground leaving at least a portion projecting and then one or more nets 10 are suspended and fixed on the projecting portions in an inclined position relative to the ground. This arrangement is particularly advantageous for checking the progress of moving masses such as landslides, avalanches or tree-trunks.

Naturally, the principle of the invention remaining the same, the forms of embodiment and details of construction may be varied widely with respect to those described and illustrated without thereby departing from the scope of the present invention.

CLAIMS

1. A protective wire net comprising an array of longitudinal wires (12) arranged side by side and each intertwined with at least one respective adjacent longitudinal wire (12), characterized in that it further comprises one or more longitudinal metal cables (14) each intertwined or interlaced with at least one adjacent longitudinal wire (12).
2. A protective wire net according to Claim 1, characterized in that the one or more longitudinal metal cables (14) are interposed between the array of longitudinal wires (12).
3. A protective wire net according to Claim 2, characterized in that it comprises a plurality of the said longitudinal metal cables (14) arranged at regular intervals relative to one another and alternating with one or more wires (12).
4. A protective wire net according to any one of the preceding claims, characterized in that at least one of the longitudinal metal cables (14) defines an edge of the net.
5. A protective wire net comprising an array of longitudinal wires (12) arranged side by side and each intertwined with at least one respective adjacent longitudinal wire (12), characterized in that it further comprises one or more transverse wires (34) and/or metal cables (16) arranged in a transverse direction relative to the longitudinal wires (12) and outside intertwining regions (22) defined by portions (20) of adjacent longitudinal wires (12) which are bent around one another, the transverse wires (34) and/or metal cables (16) being intertwined or interlaced with one or more of the longitudinal wires (12).

6. A protective wire net according to any one of Claims 1 to 4, characterized in that it further comprises the characteristics defined in Claim 5.

7. A protective wire net according to Claim 6, characterized in that it comprises anchoring means (18) for anchoring one or more transverse wires (34) and/or metal cables (16) to one or more longitudinal wires (12) and/or longitudinal metal cables (14).

8. A protective wire net according to any one of Claims 1 to 7, characterized in that the anchoring means (18) comprise at least one ring or eye, or a portion of longitudinal and/or transverse cable (14, 16) that is bent and secured to itself in order to form a loop-like element (42), which is provided on the longitudinal and/or transverse metal cables (14, 16) and through which at least one longitudinal wire (12) or one longitudinal or transverse metal cable (14, 16) extends.

9. A protective wire net according to any one of Claims 6 to 8, characterized in that the transverse cables (16) comprise bent portions of the longitudinal cables (14).

10. A protective wire net according to any one of the preceding claims, characterized in that it is a double-twist net with hexagonal meshes.

11. A protective structure, characterized in that it comprises at least one protective wire net (10) according to any one of Claims 1 to 10 and fixing means for fixing the net to a slope.

12. A protective structure according to Claim 11, characterized in that it comprises at least two of the said

protective wire nets (10) joined together by coupling means (42).

13. A protective structure according to Claim 12, characterized in that the coupling means comprise at least one longitudinal and/or transverse metal cable (14, 16).

14. Use of a protective wire net according to any one of Claims 1 to 10 for the construction of a protective structure according to any one of Claims 11 to 13.

ABSTRACT

A protective wire net comprises an array of longitudinal wires (12) arranged side by side and each intertwined with at least one respective adjacent longitudinal wire (12). Each of one or more longitudinal metal cables (14) is also intertwined with at least one adjacent longitudinal wire (12). One or more transverse wires (34) and/or metal cables (16) may also be provided, arranged in a transverse direction relative to the longitudinal wires (12) and outside intertwining regions (22) defined by portions (20) of adjacent longitudinal wires (12) which are bent around one another, the transverse wires (34) and/or metal cables (16) being intertwined or interlaced with one or more of the longitudinal wires (12).